New Edition
with additional
Installation Information

FISHER

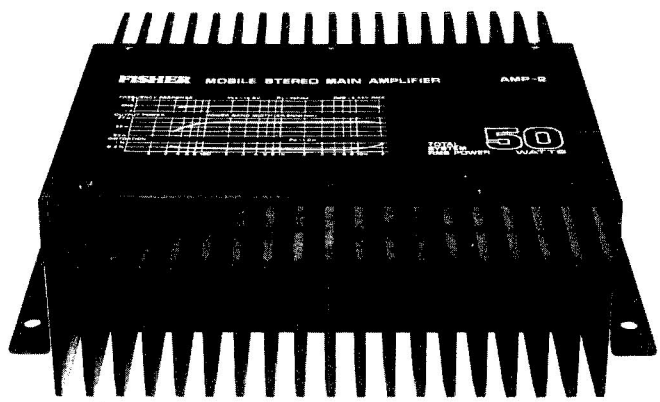
The first name in high fidelity

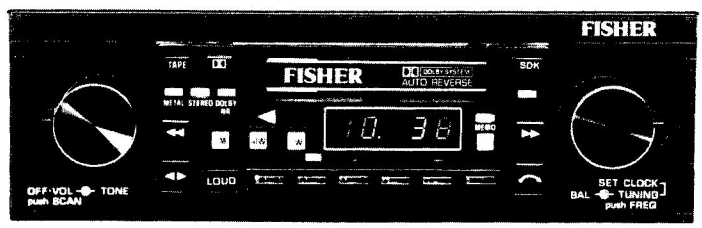
Installation Instructions

FISHER CarFidelity®

AX-5200
AX-5300
AX-5700

B-300
B-700





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Issue March, 1981

AX-5200 B-300
AX-5300 B-700
AX-5700

General Information

These instructions will give you all necessary information for the installation of the following FISHER CarFidelity units:

Receiver/Cassette Recorder (Basic unit)	AX-5200 AX-5300 AX-5700
Stereo Power Amplifier	B-300 B-700

All units can be combined and matched to meet the client's wishes.

FISHER CarFidelity Systems are constructed for use in vehicles having 12 volt negative ground only.

High Performance Car Stereo Systems of a higher performance class require effort and special installation care exceeding the normal level. For best results separate power cables must be laid. The usual wiring is insufficient and cannot supply sufficient electrical power for proper performance. For further details see "Power Supply".

The mechanical installation of all components (including stereo power amplifier and speakers) must be made so that the vibration, resulting from driving action, cannot influence the safe mounting and the electrical connections.

Regarding the strict instructions, special attention must be paid to proper installation and connection of all units to a separate ground cable that is fully explained in "Power Supply" and "Installation of the Units".

Note: Poor or insufficient grounding and power lines as well as improper mounting of the power amplifier can cause howling and crackling interferences when the engine power is on. In addition reduction of output power and poor sound quality can occur, when poor wiring is used.

Noise Suppression

FISHER CarFidelity units are supplied with automatic noise cancelling devices. Most modern vehicles are almost always constructed with a basic noise suppression system from the factory. Even so, it is highly recommended that supplementary noise suppression measures be taken when installing the unit. Additional noise suppression measures should be done on the following portions of your vehicle:

— Ignition Coil (Suppression Condenser)
— Distributor
(Noise Suppression Rotor)
— Alternator (Suppression Condenser)

In extremely problematic situations the following parts should also be considered for suppression:

— Spark Plug Caps (Shielded Caps)
— Distributor Connector
(Resistor Connector)
— Distributor Shielding with Suppression Filter
— Windshield Wiper Motor
(Suppression Filter)

It should be noted that a complete noise suppression in some vehicles is not a simple task. This type of work should be done by specialists in speciality work shops.

Connection Methods

The units AX-5200 and AX-5300 are constructed with a single pre-amplifier output with signal voltage at approximately 500 mV (max.) and an output impedance from 100 ohms. Direct connection of loudspeakers is not possible. Either FISHER power amplifier B-300 or B-700 must be utilized.

Connection between the main unit and power amplifier should be done with a four-pole colour coded cable that can be obtained from FISHER HiFi Europa Vertriebs-GmbH or at the FISHER speciality dealer where the units were purchased.

Note: Connection can be made with any wire such as speaker- or standard 1.5 mm electrical wire. Care must be taken to assure proper connection between main unit and power amplifier.

Installation of the stereo output stage can be done almost anywhere in the car (below the dash-board, under the seat, in the trunk, etc.) (Fig. 1).

If a separate fader is installed, we recommend connection as close to the power amplifier as possible (Fig. 2).

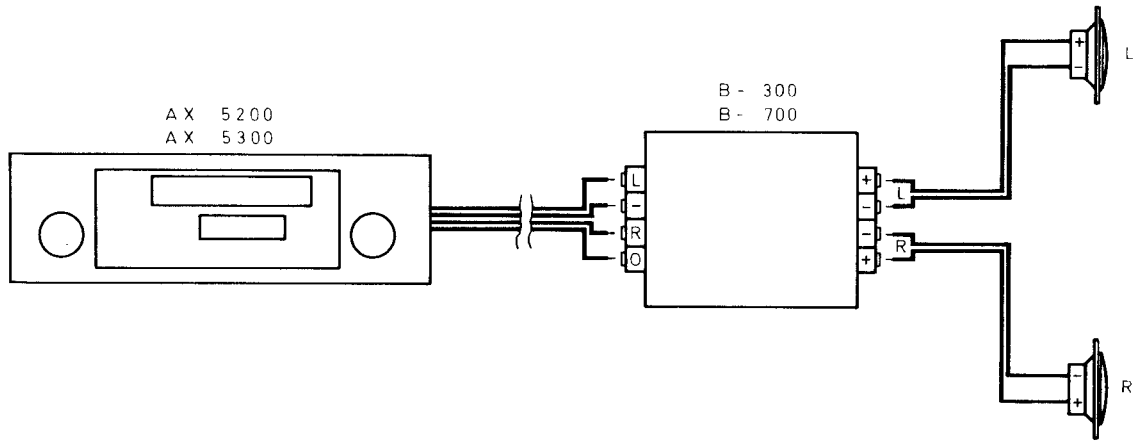

AX 5200
AX 5300
B - 300
B - 700
L
R
L
R
L
R
L
R

Fig. 1

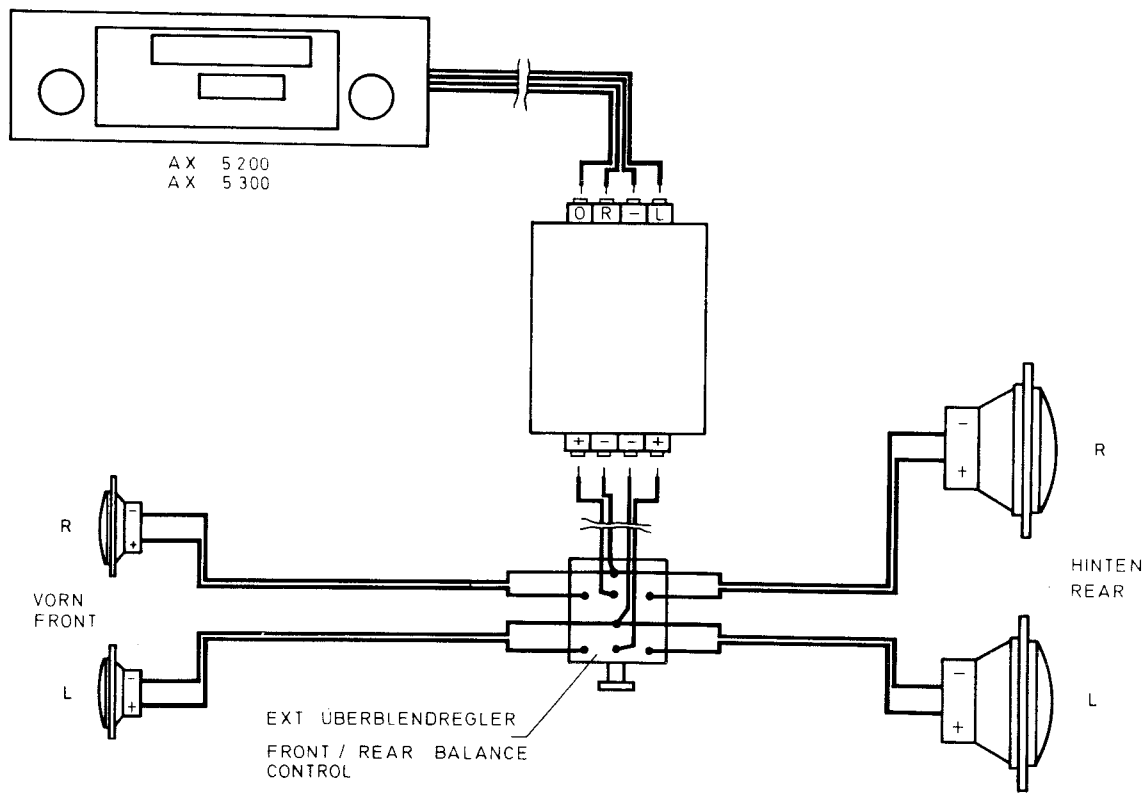

AX 5200
AX 5300
O R - L
R
VORN
FRONT
L
R
HINTEN
REAR
L
EXT ÜBERBLENDREGLER
FRONT / REAR BALANCE
CONTROL

Fig. 2

In general it is possible to connect two stereo power amplifiers with different output levels to the AX-5200 or AX-5300. This may be useful when you wish to install four loudspeakers (Fig. 3). In this case it is not possible to install a fader (balance front/back).

The FISHER AX-5700 is equipped with two independent pre-amplifier stages and a built-in fader. This allows the use of two stereo power amplifiers. For the most optimal reproduction quality, two power amplifiers and four loudspeakers can be connected. Each loudspeaker group has then its own power amplifier stage (Fig. 4).

When only one power amplifier is connected, the built-in fader of the AX-5700 is switched out of the system and will be inoperative. The output cable that is not being used should be absolutely insulated with high grade electrical tape or cable cap.

A small slider on the rear panel of the AX-5700 allows the selection between one or two power amplifiers (Pos. 7 in Fig. 6).

Installation of the Units

- Remove the grounding cable from the negative pole of the battery. This is a protective measure to prevent short circuits.

Basic Unit

- Remove the cover plate from the installation opening on the dash-board. (Test if the basic unit can be mounted — receiver/cassette deck).
- Mounting hardware according to the DIN 75 500 E format is included for installation of the main unit. In this case the unit should be inserted through the installation opening of the dash-board (not from behind) (Fig. 5).
- In some cars (older models) the basic unit should be inserted in the installation opening from behind (DIN format B). The unit should be mounted with the supplied nuts over the control axles and also on the rear side with holding strap attached to the rear of the basic unit by an M 5 x 8 screw and washer as shown in the drawing.
- Because of the many different car models, installation must be considered individually. For most popular cars special mounting hardware is available which is also suitable for installation of the FISHER CarFidelity units.
- Be sure to leave enough space for access to cables on the rear side of the unit.
- Attach both mounting angles (Pos. 5 in Fig. 5) with nuts and washers on the control axles.
- Push the prepared unit into the mounting cutout. Place the tension bar (Pos. 6 in Fig. 5) as shown in the drawing against the mounting angle and then fully tighten the screws.
- Place a nut on each control axle. Place the dress panel on the unit (Pos. 1 in Fig. 5) and attach it with a washer first and then another nut for each control axle. Push the control knobs onto the control axles as shown in Pos. 8 and 9 in Fig. 5.
- **Model AX-5700:** If necessary, mount the wire remote control (unit C) in a convenient place (reachable during driving).

Output Stages

- Place the separate power amplifier (B-300 and/or B-700) in a convenient location.

a) **At Plastic Chassis Portions:**
Use the supplied self-tapping screws. Cabinet and screws of the power amplifiers should be insulated to prevent contact with the car-body. (An electrical contact to the car-body causes interferences with engine on!)

b) **On Metal Parts of the Carriage-Body:**
Place the supplied insulating parts on both sides of the angle brackets of the power amplifiers B-300 resp. B-700 (see photo Fig. 7). Fasten the supplied self-tapping screws into the oblong holes of the insulating parts (photo Fig. 8).

The cabinet should be insulated to prevent contact with the car-body. (An electrical contact to the car-body causes interferences with engine on!)

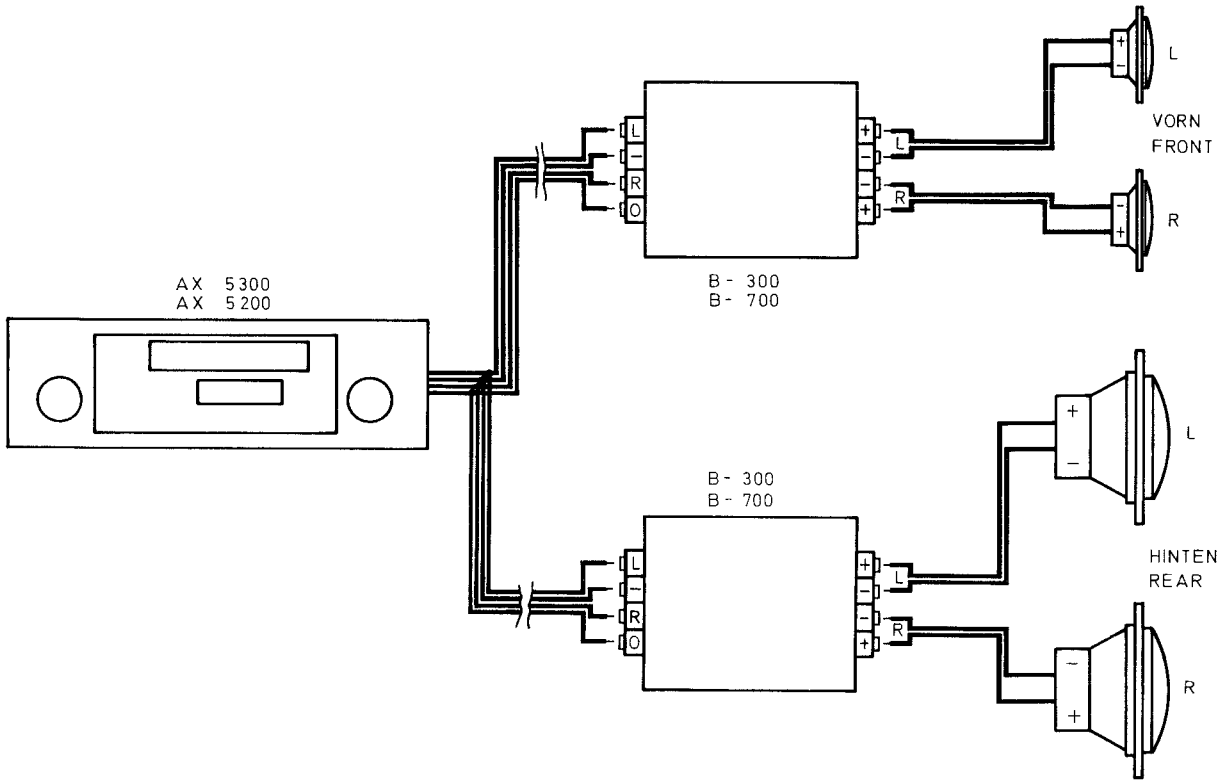

AX 5300
AX 5200
B- 300
B- 700
B- 300
B- 700
L
VORN
FRONT
R
L
HINTEN
REAR
R

Fig. 3

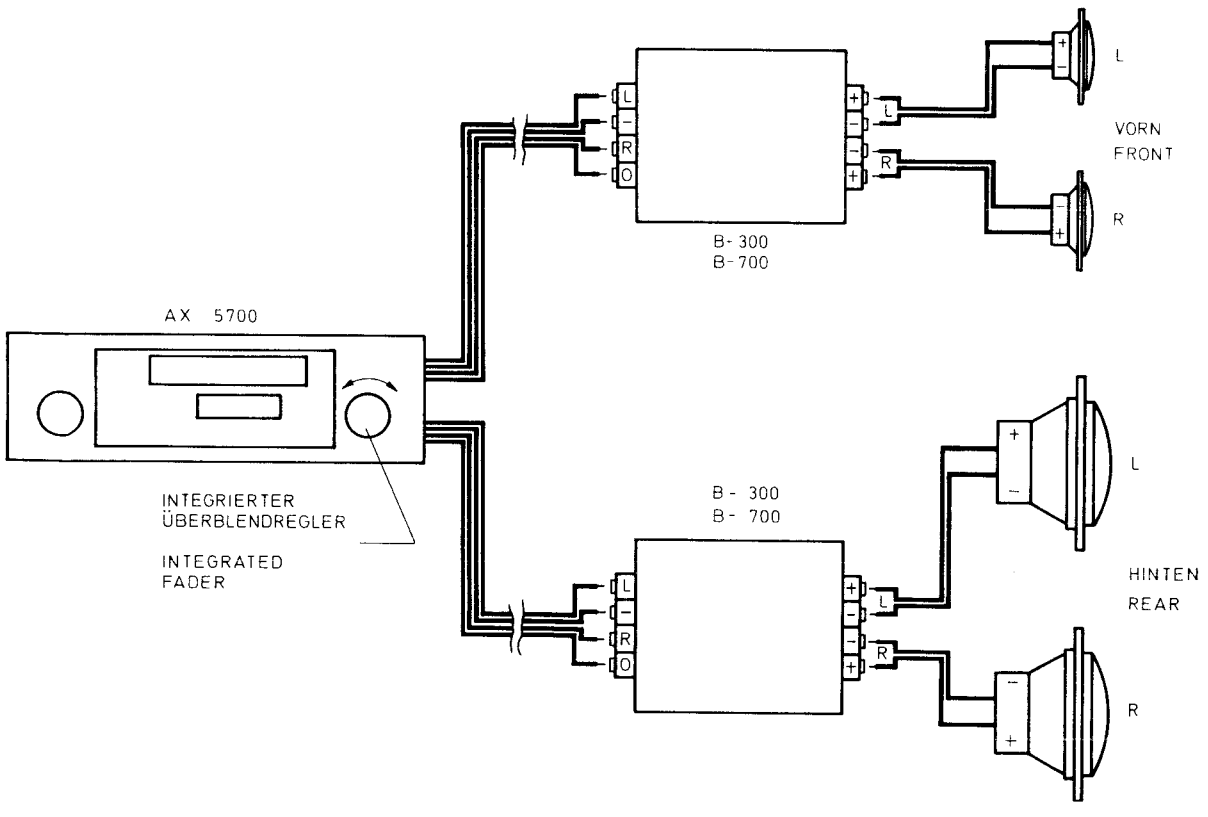
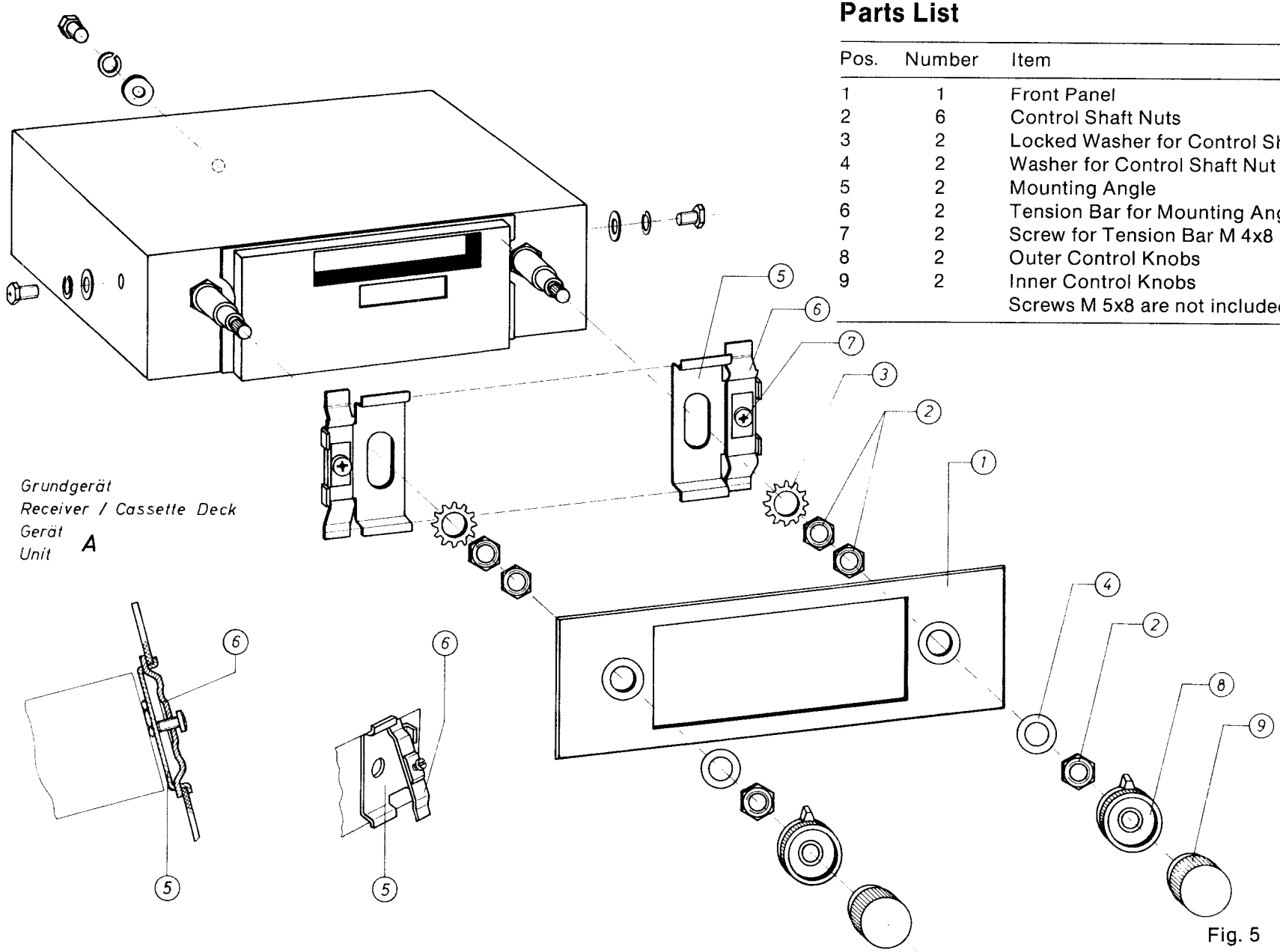

AX 5700
INTEGRIERTER
ÜBERBLENDREGLER
INTEGRATED
FADER
B- 300
B- 700
B- 300
B- 700
L
VORN
FRONT
R
L
HINTEN
REAR
R

Fig. 4



Parts List

Pos.	Number	Item
1	1	Front Panel
2	6	Control Shaft Nuts
3	2	Locked Washer for Control Shaft Nut
4	2	Washer for Control Shaft Nut
5	2	Mounting Angle
6	2	Tension Bar for Mounting Angle
7	2	Screw for Tension Bar M 4x8
8	2	Outer Control Knobs
9	2	Inner Control Knobs
		Screws M 5x8 are not included.

Fig. 5

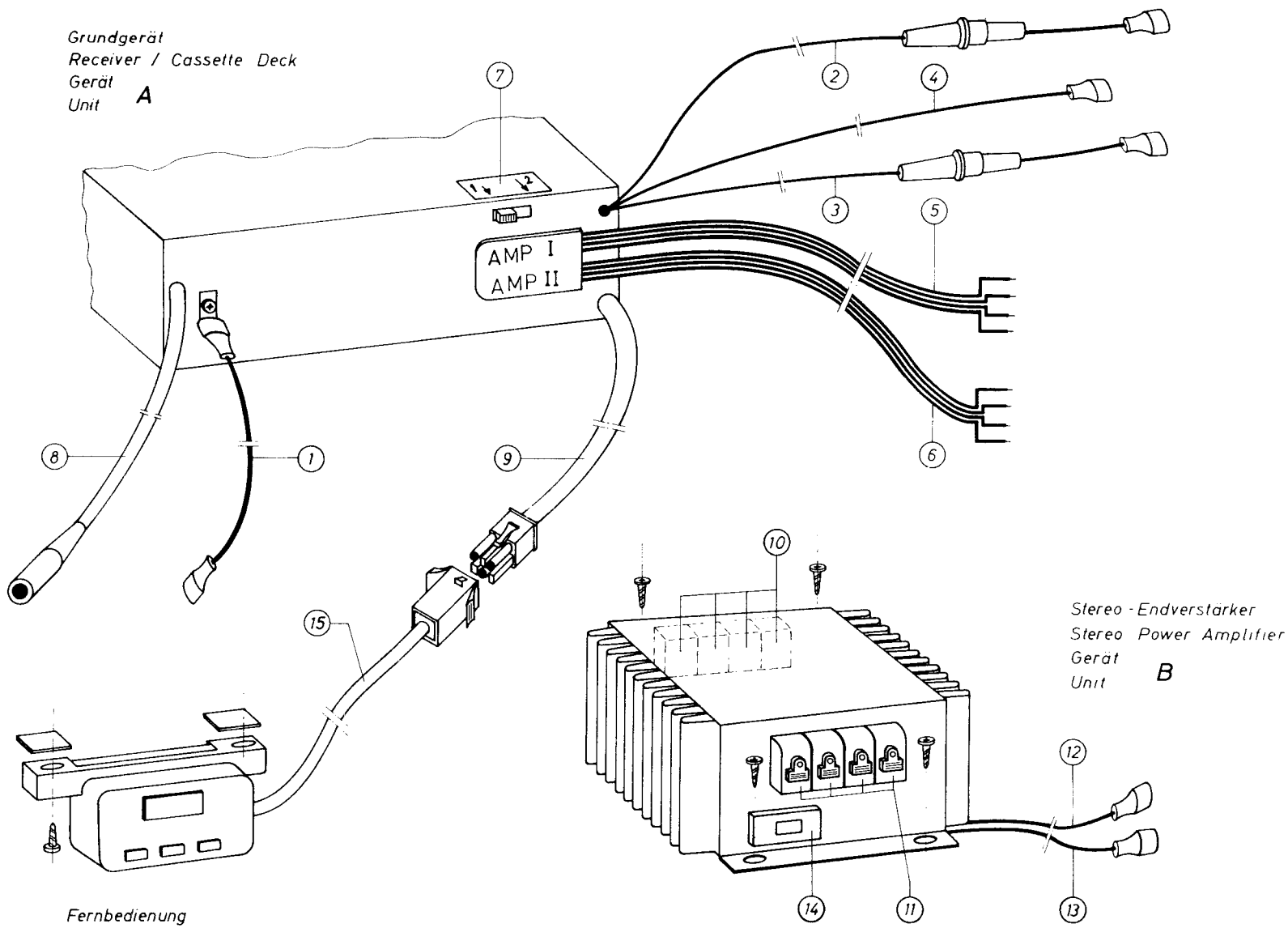

Grundgerät
Receiver / Cassette Deck
Gerät
Unit
A
AMP I
AMP II
Stereo - Endverstärker
Stereo Power Amplifier
Gerät
Unit
B
Fernbedienung
Remote Control
Gerät
Unit
C

Fig. 6

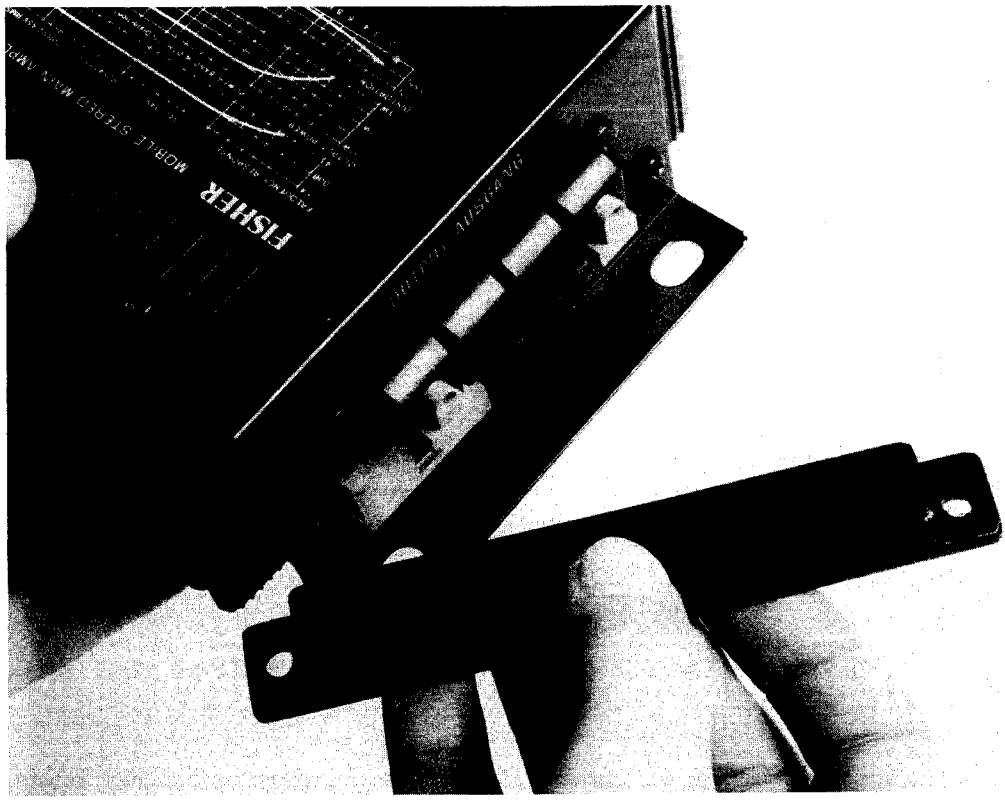


Fig. 7

Fig. 8

Cable Connection

1. Colour Coding Four-Cable Connections

A. **Receiver/Cassette Deck**

Pos. in Fig. 6	Colour	Connection.
1	brown	Central ground cable. Attach to battery (-)pole.
2	blue	+ 12V direct connection to battery and pole. Connect 2A fuse.
3	pink	+ 12V direct connection to battery and pole. Connect with 600 mA fuse.
4	red with white stripe	+12V B + for motorized or electronic antennas.
5	4 pole wire, white This means:	Output cable to the separate power amplifier.
	black stripes	Signal left channel.
	blue stripes	Common signal ground. Do not connect vehicle chassies or loudspeaker ground.
	red stripes	Signal right channel.
	without stripes	Control line for the power amplifier's relay.
6	4 pole wire, white	Output line to the second power amplifier (**only** AX-5700).
	colour code as Pos. 5	As above.
7	—	Selector for operation with one or two amplifiers (**only** AX-5700).
8	black	Antenna input.
9	black	6 pole connector for remote control (only AX-5700).

B. **Stereo Power Amplifier**

Pos. in Fig. 6	Colour	Connection.
10	3 x black 1 x orange	Input clamp for 4 strand signal cable from the main unit.
11	2 x black 2 x orange	Loudspeaker output clamp.
12	brown	Ground (-12 Volt) connect to separate ground cable.
13	red	Operating voltage (+ 12 Volt), use separate cable.
14	—	Fuse B-700: US 15 A B-300: DIN 4 A

C. **Remote Control**

Pos. in Fig. 6	Colour	Connection.
15	black	6 pole connector.

2. Power Supply

Modern motor vehicles have an extreme interference laden electrical system. Normally, the car-body serves as an overall grounding point. The metal parts serve for the return of current to the battery. For this reason, uncontrolled current flows between the single parts of the car-body (which results in various forms of electrical disturbance) if several basic rules are not followed.

Due to the inherent interference in the car's electrical system and the high current requirement of the powerful FISHER CarFidelity System amplifiers, it is advisable to wire an extra independent power line for the whole system.

As larger car stereo systems consist of several units they have to have a central grounding point. This is true for car stereo systems as well as home systems. The repeated grounding of units of a HiFi System leads to disturbances. Typical result is that, if the volume knob is turned down, noise from the ignition distributor (crackling) and howling of the generator can be heard.

FISHER CarFidelity Systems have a central grounding point located on the rear side of the basic unit (AX . . .). Plus voltage (+ 12 volt) is supplied in a similar manner from a central point. See illustration in Fig. 9.

Depending on the mounting in the different cars and the different possibilities of the wiring a simplified laying of cable — comparing to Fig. 9 — is recommended in Fig. 10.

Power Cabling in Practice

1. Lay a separate and fully insulated ground wire from the battery to the furthest mounting point (Diameter 4 mm^2 or 6 mm^2, identifying colour brown).
2. Direct insulated ground wire from a second power amplifier to the central ground point of the basic unit (Diameter according to cable length 2.5 mm^2 - 6 mm^2, identifying colour brown or black).
3. Connect the central ground point of the basic unit (AX . . .) in the shortest possible way with the ground wiring, as mentioned under point 1).
4. Connect blue and pink (+ 12 volt) power cables from the basic unit and the power lead wiring from one or more power amplifiers to a central point of connection (Diameter 2.5 mm^2 - 6 mm^2, identifying colour red).
5. Attach the grouped cables directly to the battery with insulated cable with diameter of 2.5 mm^2 - 6 mm^2, identifying colour red. Variations of this connection are possible. See illustration 3.
6. All plus cabling must be carefully laid to prevent short circuit. Furthermore the wiring, which leads to the battery, must be connected to the (+)pole of the battery with a "fast blow" 25 amp. fuse.
7. All parts of the CarFidelity System should be isolated from direct car-body contact. To fasten the power amplifier on the sheet metal of the car-body slip the insulated mounting parts onto the angle brackets (Fig. 7) and bring the screws up as shown in Fig. 8. Should the basic unit receive a ground through installation, the minus wiring from the central mass point of the unit to the battery is inapplicable. This should be tested in practical application.
8. Connection of the (+)cabling to the ignition key cannot be recommended for top-quality stereo systems. This connector is not absolutely interference-free (distributor impulses!). However, should the Car Stereo System be connected to the ignition key, this can be done with an extra relay through the current of the blue 12 voltage cables (Pos. 2 in Fig. 6) and over the ignition key (clamp 15).

Further Instructions

FISHER CarFidelity Systems are constructed with electronical programmable memory and digital quartz clock. Both require operating power when the CarFidelity unit is not in use. If operating power is interrupted (removal of battery connection), both, program memory and quartz clock, must be reprogrammed.

FISHER CarFidelity power amplifiers can be attached to the vehicle's electrical system. These units have a power switching relay that automatically switches the unit on and off with the basic unit. To prevent voltage line loss, the proper cable size should be used when making any extension of the units:

B-300: Cable with a diameter of at least 2.5 mm^2

B-700: Cable with a diameter — at least 3 Meter length — of at least 4 mm^2, otherwise 6 mm^2.

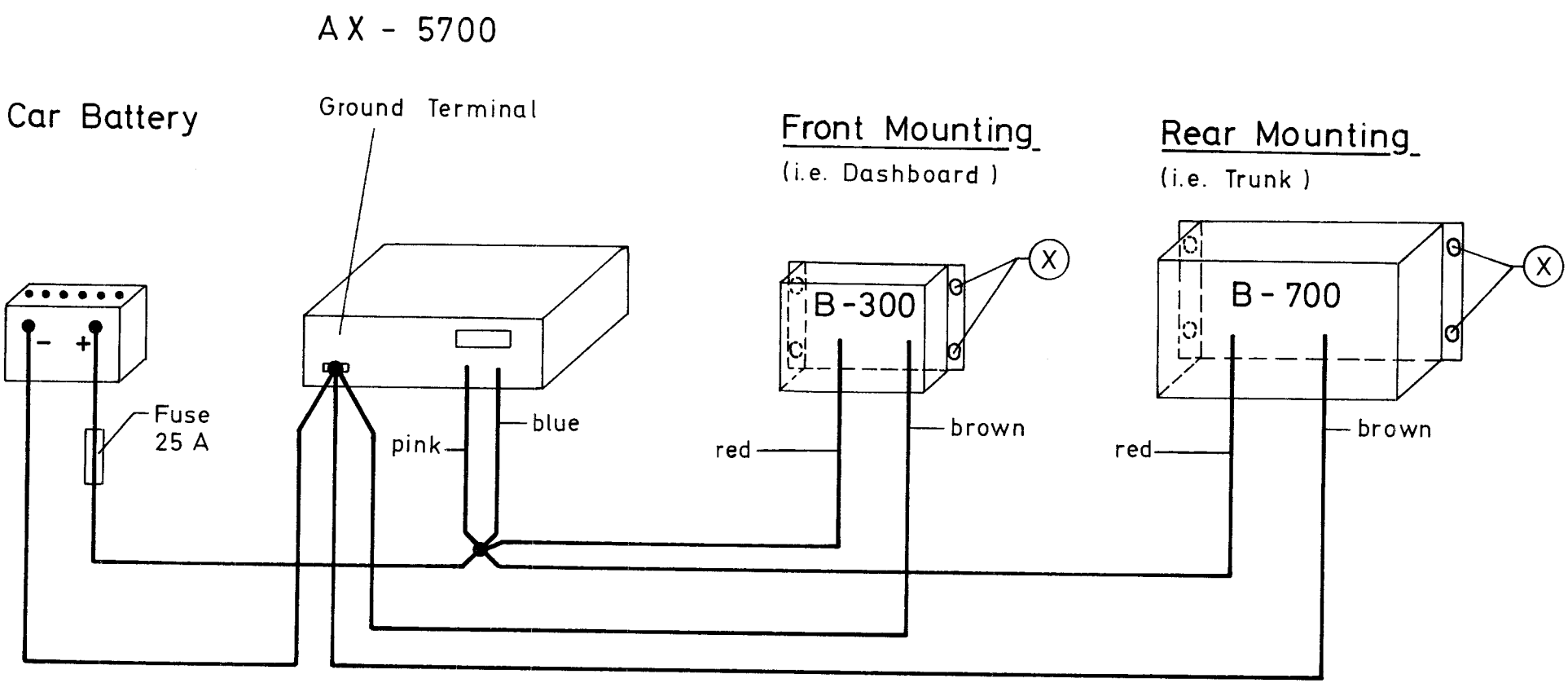


Fig. 9: Recommended wiring method for +8 and ground connections of FISHER CarFidelity Systems.

(X) Cabinets of Stereo Power Amplifiers B-300 and B-700 to be mounted without ground connection to the car's body.

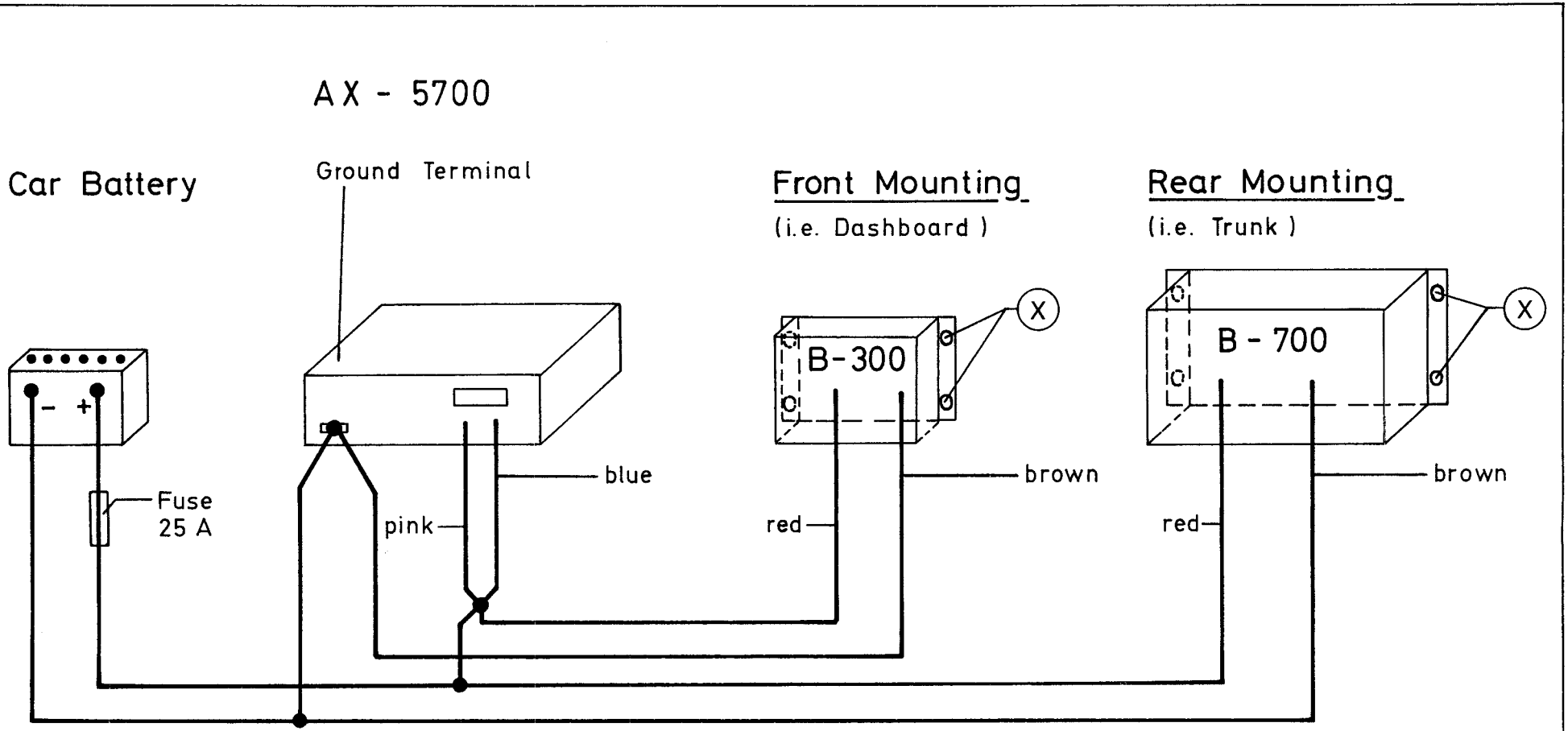


Fig. 10: Recommended wiring method for +8 and ground connections of FISHER CarFidelity Systems.

(X) Cabinets of Stereo Power Amplifiers B-300 and B-700 to be mounted without ground connection to the car's body.

3. Connection to the Power Amplifiers

The basic unit (receiver/cassette deck) can be connected to the power amplifier with a colour coded four-pole wire (for example: doubled two-strand). Pay attention to proper orientation. It is advisable to use a colour coded (Pos. 5 in Fig. 6) four-pole wire which is available at FISHER HiFi Europa Vertriebs-GmbH or at your FISHER speciality dealer. Improper connection will cause malfunction but damage will not occur.
Please pay attention to the sketches in Fig. 1 - 4.

Indication
The four-pole connection line from the unit to the power amplifiers should not be laid with other cables due to inductive/capacitive crosstalk interference. By experience we know that four-pole connection lines should not be laid in door cable tunnels but to be passed under the carpet. Power cables can be laid in door cable tunnels.

4. Connection to the Loudspeakers

1. Speakers connected to the power amplifier should only be connected with separate two-strand cables. The cables cannot have any electric contact with one another or any contact to ground on the chassis of the vehicle.
2. Speaker-wiring should have a diameter of 0.5 mm^2 - 0.75 mm^2. Please use the attached cable or similar material. Never use the four-pole FISHER CarFidelity signal line because of insufficient diameter!
3. Installing the speakers, pay careful attention that the speakers' terminals do not accidentally contact the metal of the car-body.
4. Speaker-wiring is sensitive to outside electrical interference. Loudspeaker cables should be separately laid from the car's wiring system but can be laid with other cables of the CarFidelity System.

5. Remote Control

Model AX-5700: If the remote control is installed, connect with the six-pole plug and place control in a convenient location (Pos. 9 in Fig. 6).

6. Antenna Connection

The connection of the antenna is no problem. But consider that even the best Car Stereo System can only reproduce what the unit gets from the antenna. The following tips will give the best results:

1. Mounting of the antenna only at the point given by the vehicles' manufacturers.
2. Pay attention having a good central mass point for the antenna.
3. Electronic Antennas, i.e. antennas with installed amplifier, can give noise problems. Passive antennas are preferable unless extremely long connection cables are required.
4. Is a motor antenna used connect the trailing cable to the matching cable of the basic unit (Pos. 4 in Fig. 6).
5. FISHER CarFidelity Systems, operating together with radio- or car telephone systems, should have a separate antenna for each unit. So-called antenna cross-overs often cause unnecessary loss of reception quality.

The radio antenna should be mounted far away from radio- or car telephone antennas.

However, interference or poor reception during operation of the radio telephone system cannot be completely avoided.